



Anderson, Alison <alison_anderson@fws.gov>

Laguna Mountains skipper 5 year status review

Arthur Shapiro <theochila@gmail.com>

Mon, Mar 21, 2016 at 10:48 AM

To: "Anderson, Alison" <alison_anderson@fws.gov>

I have completed my review of the Draft Recovery Plan for the Laguna Mountains Skipper. Having experience only with the northern subspecies (which is always univoltine) and with its rather close relative *Pyrgus scriptura*, but no direct experience with *P. ruralis lagunae*, I have little to say. The Draft Recovery Plan appears to be meticulously prepared and to incorporate all the information necessary to generate and justify the actual recommendations. It is superior to several (most) recovery plans I have seen and/or reviewed for endangered or threatened butterflies in the past. Referring to the Feb. 12 letter from G. Mendel Stewart which specifies three areas for which comment is specifically invited:

1. My only concern—and it is embodied in the text—is that climate change is likely, even in the relatively short term, to make recovery even more of a moving target than usual. That is, if climate increases or decreases stress on the species populations, the Service must be prepared to reevaluate both the criteria and the implementation strategy on an ongoing basis and to adapt appropriately as circumstances dictate. In that regard, consider that the current El Niño, which was projected to bring heavy and persistent precipitation to southern California, has failed to do so and in fact unless something happens very soon, the 2015-16 rainy season will constitute a fifth consecutive drought year for the region.

2. I believe the proposed actions are biologically sound. The balance between preventing losses due to grazing and maintaining grazing to prevent successional loss of habitat is the greatest challenge the Service faces, other than possible climatic inputs.

3. As I have communicated to Dr. Anderson, I have special concerns regarding phenology. The partially-bivoltine life history is intrinsically unstable and could easily tilt either way depending on climate and resource availability. The Conceptual Model is critical in this regard because changes in voltinism could rapidly and dramatically alter population dynamics. In *Pyrgus scriptura*, during some 43 years of monitoring in northern California, several populations have declined and at least one has become extinct, and these declines were foreshadowed by declines and disappearances of the summer generation(s). The same was observed with the partially-bivoltine Pierid butterfly *Euchloe ausonides*, which is now regionally extinct over a broad area. Thus I want to stress the importance of ongoing monitoring of phenology and feedback between the data and the Conceptual Model.

Incidentally, I heartily endorse efforts at reintroduction to apparently suitable habitats where populations were relatively recently lost.

Sorry that my comments cannot be more specific; I concur with Wittgenstein that when one knows nothing, one should be silent.

Best,

Arthur M. Shapiro

Distinguished Professor, Evolution & Ecology

On Wed, Mar 9, 2016 at 3:01 PM, Anderson, Alison <alison_anderson@fws.gov> wrote:

Dear Peer Reviewers,

I've attached a draft of the Laguna Mountains skipper 5 year status review, a document heavily cited in the draft recovery plan you are currently reviewing for us.

This document has more detailed biological information in it than the recovery plan, and explains some of the ecological concepts more extensively. I'm providing you with this document because it is cited in draft recovery plan and is not readily available; I would also appreciate any feedback from you on it as well. Please do not mix any feedback on this document with your official draft recovery plan review comments, those must be submitted separately, and refer directly to the recovery plan.

If there are any other documents cited by the recovery plan you would like to see as well, just let me know.

Sincerely,

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Alison Williams- Anderson, Ph.D.

Tribal Liaison

Entomologist

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Be kind, and you will be repaid in kind.

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As the only person who has ever lived my life, I know that most of it can never be documented, is beyond writing and beyond words.--Wendell Berry